THE SOUTH AFRICAN MEDAL OF THE BRITISH ASSOCIATION.

WHEN the members of the British Association were in South Africa last August and September, it occurred to someone of the party that it would be well to commemorate our visit by founding a medal for South African students. I am sorry that I cannot remember to whom the credit of this admirable suggestion is due, but the officers at once adopted it with enthusiasm. Papers explaining the proposal were first circulated through the special trains on our way from Durban to Johannesburg, and a substantial sum was promised in a very short time. The proposal was subsequently laid before those who did not happen to be travelling in the special trains, and ultimately before all the members of the British Association.

On our return to England, a meeting of the subscribers was summoned, and a committee was appointed to consider the manner in which the fund should be applied. It was resolved that the South African Association for the Advancement of Science should be asked to accept the trusteeship and administration of the fund, and to undertake the annual award of the medal which was to be struck.

The income of the fund was to be in aid of scientific research among South African students, and it was thought that the medal would commemorate appropriately the fact that the recipient of the award was of such promise as to have been deemed worthy of the confidence placed in him.

The South African Association has cordially accepted the duties in question, and a medal, shown in the illustration, and to be struck in bronze, has been designed by Mr. Frank Bowcher.

The total sum subscribed by the members of the British Association amounts to 859*l*., but the fund will receive a further substantial augmentation, as I shall now explain.

Before the meeting of last year, the several South African colonies subscribed a large sum in aid of the expenses of the members intending to come out to South Africa, and this sum was supplemented, although on a less liberal scale, by a subscription in England. The total of this special South African fund was a little more than 900*l*. It is expected that, when all the accounts are settled, the unexpended balance will come to about 500*l*. It is clear that this balance ought to be returned to South Africa in some way, and a resolution has been passed by the council of the association that the unexpended balance shall be devoted to the augmentation of the medal fund. The expenses attendant on the design of the medal have amounted to about 100*l*., and it is hoped that more than 1200*l*. will remain for transmission to South Africa. As a higher rate of interest on safe investments is obtainable there than here, a substantial annual sum will be provided in aid of research.

The cordiality of our reception in South Africa surpassed all that could possibly have been foreseen, and we in England are glad to be able to establish this small foundation as a memorial of the most remarkable of the many annual meetings of the British Association.

G. H. DARWIN.

Mr. Frank Bowcher's Designs for the South African Medal of the British Association.

THE EARTHQUAKE IN SOUTH WALES.

THE earthquake which occurred in South Wales on June 27 at about 9.45 a.m. ranks among the strongest shocks of which we have had any experience in this country. It was felt over the whole of Wales, and throughout the greater part of the west and south-west of England. Judging from the accounts which I have already received, the disturbed area must extend some distance to the north of Liverpool; towards the east it includes Northampton and Maidenhead, and approaches to within about twenty miles of London, while the southern boundary lies in the English Channel to the south of Dorset, Devon, and Cornwall. I have not yet obtained any observations from Ireland, but there can be little doubt that the shock was sensible over most of the counties of Wicklow and Wexford. A first rough estimate makes the disturbed area nearly circular in form, about 280 miles in diameter, and about 60,000 square miles in area.

The shock, which affected a region greater than the combined areas of England and Wales, was naturally of considerable strength within the central district. It is too early to make any estimate of the total damage to buildings, but the first reports show that a very large number of chimneys were thrown down, especially in Swansea, where the number is said to amount to several hundred. From Kidwelly on the west to beyond Neath on the east, and from Glanamman on the north to beyond Swansea on the

south, it will probably be found that few towns and villages have escaped some injury. The isoseismal line of intensity 8, or the curve which bounds the area of slight damage to buildings, seems to be roughly elliptical in form, about twenty-eight miles from east to west and eighteen to twenty miles from north to south, or a little more than 100 square miles in area.

Nearly all the strongest British earthquakes belong to the class which have been called "twin" earthquakes. They originate within two foci, which are nearly or quite detached, with their centres, as a rule, about eight or ten miles apart. But the chief peculiarity about them is that the two impulses which cause them take place almost simultaneously, or, if not quite so, that the second impulse occurs before the vibrations from the first focus have time to reach the other, the two impulses being thus due to a single generative effort.

From the descriptions which have been given there can, I think, be no doubt that the recent shock was a typical twin earthquake. Many hundreds of observations will be required to determine the positions of the twin foci, and to ascertain which focus was first in action. But, so far as the evidence already collected allows us to judge, the foci appear to have been situated along a nearly east and west line, and are probably coincident with an east and west fault, passing close to Llanelly, Swansea, and Neath. It would be useless at present to attempt a more exact definition of the originating fault, but it is clearly connected with the great Armorican system of crust-movements, which attain their maximum in Brittany and mid-Devon, and, as they enter South Wales, begin to die away. In this district, as Mr. Aubrey Strahan remarked in his address at the Cambridge meeting of the British Association, the chief disturbances are of post-Carboniferous age. That they are still occasionally continued, though on a much smaller scale, the recent shock bears ample testimony.

It is evident from the above account that the earthquake presents several features of considerable interest to geologists. The district is also one that affords unusual opportunities for the study of the nature and effects of the shock in deep mines, and it is to be hoped that our somewhat scanty knowledge will be advanced in this respect.

I take this opportunity of stating how greatly my investigation of the earthquake would be assisted by the contribution of records from different places, and especially from the workings in the mining districts. The points on which I wish to obtain information will be found in many local newspapers, but I shall be glad to send forms on which descriptions may be conveniently entered if application is made to me at 16 Manor Road, Edgbaston, Birmingham.

CHARLES DAVISON.

PROFS. N. S. SHALER AND I. C. RUSSELL.

GEOLOGICAL science, and America in particular, has suffered a severe loss in the deaths of two university professors, N. S. Shaler, of Harvard, and I. C. Russell, of Michigan.

Prof. Nathaniel Southgate Shaler, who was born in Newport, Kentucky, on February 20, 1841, graduated at Harvard University, and served two years as an artillery officer in the Union Army during the Civil War. Subsequently he pursued the study of natural science, to which he had been attracted at the Lawrence Scientific School in Cambridge, took the degree of Sc.D. in 1865, and became in 1868 instructor in zoology and geology in that school, and also professor of palæontology in Harvard University. While retaining this professorship, he was in 1873 appointed director of the second Kentucky Geological Survey, a post he held until 1880; and in 1887 he became professor of geology in Harvard University, and occupied the chair until his death this year at the age of sixty-five. When little more than twenty years of age he discussed the age of the rocks in Anticosti, in a paper read before the Boston Society of Natural History, and in 1865 and following years he brought before the same society his views on the elevation of continental masses, arguing that sea-bottoms on which sedimentation was taking place were areas of depression, and that prominent lands undergoing denudation were areas of uplift. He discussed the formation of mountain chains (1866), and maintained that while the continental folds were corrugations of the mass of the earth's crust, the mountain chains were folds only of the outer portion of the crust caused by contraction of its underlying part, and that the formation of mountain chains would be promoted by the subsidence of the ocean's floors, fractures and dislocations being thereby produced along their borders (see G. P. Merrill's "Contributions to the History of American Geology," 1906). In a subsequent paper (1875) Shaler suggested that the transfer of weight to the land by the accumulation of an ice-sheet would influence terrestrial movements. He also discussed the possibility of the Japan current flowing at the close of the Glacial period over what is now land about Bering's Strait, and thus modifying the climatic conditions. He issued memoirs and reports on the geology of Kentucky (1876, &c.), and in later years dealt with a great variety of subjects, scientific and practical, including the classification of lavas, the fossil brachiopods of the Ohio valley, soils, the geological history of harbours, peat-deposits, road-stones, the features of the earth and moon, &c. He was author of important reports on the geology of Cape Cod district (1898); (with J. B. Woodworth) geology of the Richmond Basin, Virginia (1899); and (with A. F. Foerste) geology of the Narragansett Basin (1899). He wrote also "Outlines of the Earth's History" (1898); "Sea and Land: Features of Coasts and Oceans, with Special Reference to the Life of Man" (1895); "Study of Life and Death" (1900), and other works of a more or less popular character.

Prof. Israel Cook Russell, whose death occurred at the age of fifty-three, was born at Garrattsville, in New York State, on December 10, 1852. He graduated at the University of New York in 1872, and after further study at the School of Mines, Columbia, was appointed a member of the U.S. expedition to New Zealand (1874–5) to observe the transit of Venus. His attention, however, was given mainly to the study of physical geology. On his return from New Zealand he became assistant professor of geology at the Columbia School of Mines, and in 1878 was appointed assistant geologist on the U.S. geographical and geological survey west of the one hundredth meridian. From 1880 to 1892 he served as geologist on the U.S. Geological Survey, and in 1892 he became professor of geology in the University of Michigan. His earlier papers (1878) dealt with the physical history of the Trias in New Jersey, and with the intrusive nature of the eruptive rocks, in which he recorded the presence of a solid hydrocarbon. One of his more important works was a sketch of the geological history of the former Lake Lahontan, which in Quaternary times occupied an area of nearly 8500 square miles in N.W. Nevada (1883); he wrote also on the glaciers of Mount Rainier (1898), and on the geology of the Cascade Mountains (1900). Of later